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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,629	05/04/2007	Dieter Grozinger	VMP-40010	9720

66919 7590 11/07/2008

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EXAMINER	
PATEL, DEVANG R	
ART UNIT	PAPER NUMBER
1793	

MAIL DATE	DELIVERY MODE
11/07/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/589,629	GROZINGER, DIETER	
	Examiner	Art Unit	
	DEVANG PATEL	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Interpretation

It is noted that claims 1-2 are product-by-process claims. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *See MPEP 2113.*

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1-2** are rejected under 35 U.S.C. 103(a) as being obvious over Anderko et al. (US 3407864).

Regarding claim 1, Anderko et al. ("Anderko") discloses a water soluble salt core for pressure casting made from a mixture having 95 wt% sodium chloride (i.e. salt), 3 wt% borax, 1 wt% magnesium oxide, and 1 wt% talc [col. 2, lines 32-37]. Such mixture is very close to the claimed mixture, which has a range of 91-94 wt% salt, 3.8-4.5 wt% borax, 1.9-2.7 wt% magnesium, and 0.47-1.8 wt% talc or graphite. The sintered product of Anderko produces a consolidated microstructure and is similar to the microstructure which is compacted under pressure prior to the sintering process. With respect to the magnesium limitation, it is reasonable to expect that at least certain percentage of magnesium will be oxidized to form magnesium oxide and thus, the microstructure of the as-sintered core will be similar to Anderko. It would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed ranges through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *See* MPEP 2144.05. Moreover, it would have been obvious to an artisan of ordinary skill to obtain optimal microstructure through routine experimentation depending on the desired product, such as the density and the strength of the core, to be obtained.

As to claim 2, Anderko discloses that the salt core is sintered at 700 ºC for about 0.5-1 hr [col. 2, lines 5-11].

3. **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderko et al. (US 3407864) in view of Sakoda et al. (US 3963818).

Regarding claim 3, Anderko discloses a method of manufacturing water soluble salt cores [col. 1 line 59 thru col. 2, line 20] including the steps of:

preparing a mixture having 95 wt% sodium chloride (i.e. salt), 3 wt% borax, 1 wt% magnesium oxide, and 1 wt% talc [col. 2, lines 32-37]. It would have been obvious to one of ordinary skill in the art at the time of the invention to prepare the mixture containing the instantly claimed ranges through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. Moreover, it would have been obvious to an artisan of ordinary skill to prepare the claimed mixture composition in order to obtain optimal microstructure through routine experimentation depending on the desired product, such as the density and the strength of the core, to be obtained.

Anderko does not disclose compacting the mixture at a pressure between 300-900 N/mm^2. However, **Sakoda et al.** (drawn to water soluble core for pressure casting and process for making the same) discloses compacting a salt mixture with a pressure between 1.8-4 $tons/cm^2$ (4 $tons/cm^2$ being equivalent to 392 N/mm^2) [col. 2, lines 37-41; col. 4, lines 5-18]. It would have been obvious to a person of ordinary skill in the art at the time of the invention to compact the mixture of Anderko at the claimed pressure range (similar to Sakoda) in order to obtain optimal process parameters through routine experimentation depending on the desired density and strength of core to be obtained.

Anderko discloses sintering the mixture at 700 ºC for about 0.5-1 hr [col. 2, line 11].

4. **Alternatively, Claims 1-2** are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderko et al. (US 3407864) in view of Toeniskoetter et al. (US 3968828, referring as US '828).

Regarding claim 1, Anderko et al. ("Anderko") discloses a water soluble salt core for pressure casting made from a mixture having 95 wt% sodium chloride (i.e. salt), 3 wt% borax, 1 wt% magnesium oxide, and 1 wt% talc [col. 2, lines 32-37]. Such mixture is very close to the claimed mixture, which has a range of 91-94 wt% salt, 3.8-4.5 wt% borax, 1.9-2.7 wt% magnesium, and 0.47-1.8 wt% talc or graphite. The sintered product of Anderko produces a consolidated microstructure and is similar to the microstructure which is compacted under pressure prior to the sintering process.

The mixture differs only in that it includes magnesium compared to magnesium oxide. **US '828** is directed to binder composition for sand core casting and discloses mixture of alkaline earth metal (encompasses magnesium) and an oxide (i.e. magnesium oxide) [col. 2 lines 3-4; col. 23, lines 23-31]. The claim would have been obvious because the substitution of one known element for another (magnesium for magnesium oxide as a binder in the core mixture) would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

It would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed ranges through process optimization, since it

has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. Moreover, it would have been obvious to an artisan of ordinary skill to obtain optimal microstructure through routine experimentation depending on the desired product, such as the density and the strength of the core, to be obtained.

As to claim 2, Anderko discloses that the salt core is sintered at 700 ºC for about 0.5-1 hr [col. 2, lines 5-11].

5. **Alternatively, Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderko et al. (US 3407864) in view of Toeniskoetter et al. (US 3968828, referring as '828), and further in view of Sakoda et al. (US 3963818).

Regarding claim 3, Anderko discloses a method of manufacturing water soluble salt cores [col. 1 line 59 thru col. 2, line 20] including the steps of:

preparing a mixture having 95 wt% sodium chloride (i.e. salt), 3 wt% borax, 1 wt% magnesium oxide, and 1 wt% talc [col. 2, lines 32-37]. The mixture differs only in that it includes magnesium compared to magnesium oxide. **US '828** is directed to binder composition for sand core casting and discloses mixture of alkaline earth metal (encompasses magnesium) and an oxide (i.e. magnesium oxide) [col. 2 lines 3-4; col. 23, lines 23-31]. The claim would have been obvious because the substitution of one known element for another (magnesium for magnesium oxide as a binder in the core mixture) would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

It would have been obvious to one of ordinary skill in the art at the time of the invention to prepare the mixture containing the instantly claimed ranges through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. Moreover, it would have been obvious to an artisan of ordinary skill to prepare the claimed mixture composition in order to obtain optimal microstructure through routine experimentation depending on the desired product, such as the density and the strength of the core, to be obtained.

Anderko does not disclose compacting the mixture at a pressure between 300-900 N/mm^2. However, **Sakoda et al.** (drawn to water soluble core for pressure casting and process for making the same) discloses compacting a salt mixture with a pressure between 1.8-4 $tons/cm^2$ (4 $tons/cm^2$ being equivalent to 392 N/mm^2) [col. 2, lines 37-41; col. 4, lines 5-18]. It would have been obvious to a person of ordinary skill in the art at the time of the invention to compact the mixture of Anderko at the claimed pressure range (similar to Sakoda) in order to obtain optimal process parameters through routine experimentation depending on the desired density and strength of core to be obtained.

Anderko discloses sintering the mixture at 700 ºC for about 0.5-1 hr [col. 2, line 11].

Conclusion

Claims 1-3 are rejected.

The rejections above rely on the references for all the teachings expressed in the text of the references and/or one of ordinary skill in the art would have reasonably

understood from the texts. Only specific portions of the texts have been pointed out to emphasize certain aspects of the prior art, however, each reference as a whole should be reviewed in responding to the rejection, since other sections of the same reference and/or various combinations of the cited references may be relied on in future rejections in view of amendments.

Applicant is reminded to specifically point out the support for any amendments made to the disclosure. See 37 C.F.R. 1.121; 37 C.F.R. Part 41.37; and MPEP 714.02.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVANG PATEL whose telephone number is (571)270-3636. The examiner can normally be reached on Monday thru Thursday, 8:00 am to 5:30 pm, EST..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. P./
Examiner, Art Unit 1793

/Kiley Stoner/

Primary Examiner, Art Unit 1793